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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/724,637

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Herve Michaud

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2003

513 7590 03/14/2007  
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EXAMINER

YEE, DEBORAH

ART UNIT

PAPER NUMBER

1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/724,637

Applicant(s)

MICHAUD ET AL.

Examiner

Deborah Yee

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 6 to 13 and 15 to 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 6 to 13 and 15 to 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1-03-2007 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1 recites 800 daN and 1200daN. The term "da" is indefinite and needs to be clearly defined. Perhaps "da" should be --deci---.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,6 to 13, and 15 to 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellus et al (US Patent 5,820,706) in view of Bone (US Patent 6,786,073) or Vodopyanov et al (US Patent 6,094,956).

7. Bellus in claims 1 to 14 of columns 5 to 8 and lines 53 to 56 of column 5 discloses forged bainitic steel alloy parts having an analogous composition which can be fabricated for automobile components such as shafts (equivalent to crankshaft), and are produced in essentially the same manner as claimed by applicant.

8. More specifically, Bellus steel example 2 on lines 1 to 25 of column 5 meets the composition recited by the claims except does not contain Nb, S, Ca, Tem Se, Bi and/or Pb. These elements, however, are taught as optional alloying elements on lines 25 to 40 of Bellus in claim 1 of column 6; and hence would be obvious to incorporate to example 2. Also prior art steel example 2 is processed by hot forging at 1270 to 1040C (encompasses claimed forging temperature range of 1100 to 1300C); force air cooling at 2.6C/sec down to 400C to form bainite (within the claimed range of less than or equal to 3C/s in the range of 600 to 300C).

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9. Even though machining is not disclosed, such would be obvious to incorporate since other analogous examples teach machining (see for example, lines 35 –36, column 5).

10. Even though deep rolling the forged part at locations that are to be subjected to particularly high levels of stress (fillets) to generate high compressive stresses of 800 to 1200 daN as recited by claims 1 and 17 is not taught by Bellus, such would not be a patentable difference. Note that Bone on lines 12 to 20 in column 1 and Vodopyanov on lines 16 to 28 in column 1 teach that it is a conventional practice in the metallurgical art to subject crankshafts in the fillet area to deep rolling in order to generate residual compressive stress to thereby improve fatigue strength. Since improved fatigue strength would be desired and sought for the automotive shaft taught by Bellus, then it would be obvious modification well within the skill of the artisan to incorporate a deep rolling step to the prior art process to produce no more than the known and expected effect from such additional process step. Moreover, the deep rolling applied load between 800 to 1200daN as recited by claim 1 would be a matter of choice and routine optimization well within the skill of the artisan to determine depending on the desired amount of residual compressive stress sought.

11. Prior art on lines 1 to 27 of column 2 discloses alloying constituents with wt% ranges that overlap or closely approximate those recited by claims 6 to 12.

12. Prior art claim 9 in column 7 discloses annealing after forging at 150C to 650C which overlaps with applicant's annealing range of 300 to 500C recited by claim 13.

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Also prior art annealing can be performed for 1 hour, as shown example 2 on line 15 of column 5 within the claimed time range of 1 to 3 hours.

13. Note that the overlap or close approximation in alloying constituents or annealing temperature establishes a prima facie case of obviousness because it would be obvious to one of ordinary skill in the art to selected the claimed ranges from the broader disclosure of the prior art since the prior art has the same utility (crankshaft). See MPEP 2144.05.


14. Prior art on lines 52 to 56 of column 5 teaches forgings for automobile components such as shafts, which would broadly include crankshaft and hence meet claims 15 to 16.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-27211253. The examiner can normally be reached on monday-friday 6:00am-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Deborah Yee  
Primary Examiner  
Art Unit 1742

dy